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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Hans-Dieter Bothe

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EXAMINER

BITAR, NANCY

ART UNIT

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2624

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/524,703	Applicant(s) BOTHE ET AL.	
	Examiner NANCY BITAR	Art Unit 2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 February 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 19-36 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 19-36 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 February 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>2/16/2005</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

1. Claims 32-36 are objected to because of the following informalities: Claims 32-36 teaches the device as recited in claim 31 that does not recites a device but rather recites a system. Appropriate correction is required.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 9-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ertl et al (2002/0149184) in view of Kohler et al (US 7,245,741).

As to claim 19, Ertl et al. teaches a method for detecting an occupancy state of a seat in a vehicle, comprising: recording a 3D image of the seat using an image recording system (a 3-D camera device, 20) ; obtaining a 3D pattern of the seat (generating three-dimensional position surface image data, paragraph [0034]) ; evaluating the 3D image of the seat with respect to at least one of the occupancy state of the seat and an occupancy type of the seat , wherein the evaluation includes consideration of the 3D pattern of the seat (A three-dimensional position surface image of the unoccupied seat 2 can be generated, for example, by virtue of the fact that

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an image of the non-occupied seat surface is taken by the 3-D camera device 20, paragraph [0040]); and activating a restraint mechanism associated with the seat, as a function of at least one of the occupancy state of the seat and the occupancy type of the seat (By means of the individual image points, the unoccupied vehicle seat is covered with grating lines which intersect at the image points and which permit approximate sensing of the entire surface of the seat by means of interpolation. This ensures that the seat is not occupied at the time when the image is taken, an image is taken only if the occupation sensor 18 generates a signal which indicates the non-occupation of the seat, paragraph [0040], airbag device, 24, 26, see figure 1). While Ertl meets a number of the limitations of the claimed invention, as pointed out more fully above, Ertl fails to specifically teach the activating of the restraint mechanism. Specifically, Kohler et al. teaches the voxel image generated in the voxel unit 18 is analyzed in the analysis unit 20, for example by means of known pattern identification methods. The analysis allows the nature and spatial value of objects in the recorded interior, for example the head of a person, a child seat, etc. to be reliably identified and control signals to be generated for the control unit 26 after correlation with predetermined conditions (presence of a child seat, distance of the head of a person from the steering wheel, etc.) stored in the storage unit 24. In this way it is possible to activate and operate one or more occupant protection means 28, such as airbags, belt tensioners, etc. expediently for optimum occupant protection. (Column 4, lines 39-51). It would have been obvious to one of ordinary skill in the art to activating a restraint mechanism in Ertl control device 30 in order to increase the occupant protection with a short period of time. Therefore, the claimed invention would have been obvious to one of ordinary skill in the art at the time of the invention by applicant.

As to claims 20-21, Kohler et al. teaches a method as recited in claim 19, wherein the 3D pattern of the seat is subdivided into partial regions of the seat, and the evaluation of the 3D image includes evaluation of the partial regions of the 3D pattern of the seat that includes evaluation of mutual relationships of the partial regions with one another (the area of the interior recorded is subdivided into preferably equal-sized volume elements with each volume element being assigned the coordinates of its center point, for example. FIG. 3 shows volume elements two-dimensionally as a grid. This subdivision of the interior, i.e. the coordinates of the individual volume elements and their volumes, are for example stored in the storage unit 24, column 4, lines 9-37).

As to claims 22-23, Ertl et al. teaches a method as recited in claim 19, wherein the 3D pattern of the seat is a wire screen model representing an approximation of the real shape of the seat (see paragraph [0024]).

As to claim 24, Ertl et al. teaches a method as recited in claim 19, wherein the 3D pattern of the seat is derived in an initialization step from a 3D image of the seat in an unoccupied state under specified surrounding conditions (The 3-D camera device 20 is used to take a three-dimensional position surface image of the seat which is occupied by the person 12 and is designated in FIG. 2 by 44. This image is advantageously taken at short time intervals so that it is continuously available. In the case of an imminent accident, for example when the vehicle decelerates above a predetermined value, the position surface image can be generated with an evaluation algorithm that is, if appropriate, modified and which operates more quickly or more precisely. paragraph [0042]).

As to claim 25, Kohler et al. teaches a method as recited in claim 19, wherein, if a deviation between the 3D image and the 3D pattern exceeds a predetermined minimum value, it is concluded that the seat is occupied (figure 1, column 2, lines 26-58, see also column4 , lines 52-64) .

As to claim 26, Ertl et al. teaches a method as recited in claim 20, wherein, based on a comparison between a predetermined minimum value and a deviation between at least one selected partial region of the 3D pattern and a corresponding partial region of the 3D image, a type of at least one of an object and a person occupying the seat is determined (paragraph [0042-0043], see also Kohler et al. (column 3, lines 16-43)).

As to claim 27, Ertl et al. teaches a method as recited in claim 26, wherein predetermined parameters of the at least one of the object and the person are further determined (the volume and the weight of the person, determined therefrom by means of predetermined tables, can be calculated from the surface image data 46 so that signals which trigger and control the airbag device 24 and/or the seatbelt pre-tensioning device 16 in accordance with the position and/or the weight of the person 12 can be calculated in the evaluation device 38).

As to claim 28, Ertl et al. teaches a method as recited in claim 25, wherein determination of the occupancy state is regarded as conclusive only if essentially identical evaluation result is obtained over a plurality of sequential time points (The volume and the weight of the person, determined therefrom by means of predetermined tables, can be calculated from the surface image data 46 so that signals which trigger and control the airbag device 24 and/or the seatbelt

pre-tensioning device 16 in accordance with the position and/or the weight of the person 12 can be calculated in the evaluation device 38, paragraph [0046]).

As to claim 29, Ertl et al. teaches a method as recited in claim 28, wherein, for the determination of the occupancy state, a temporal filtering is performed, including ascertaining one of a moving average and a median value of the deviation (3D data calculation, paragraph [0040] and occupation sensor 18, figure 1).

As to claim 30, Kohler et al. teaches a method as recited in claim 19, wherein, for the evaluation, at least one of measured data corresponding to the 3D image and data corresponding to the 3D pattern are transformed to provide a uniform data format for the 3D image and the 3D pattern (the coordinates x' , y' and z' must still be transformed linearly on the basis of the vector, which connects the origins, column 3, lines 16-55]).

Claims 31-36 differ from claims 1-30 only in that claims 1-30 are method claims whereas, claims 31-36 are system claim. Thus, claims 1-30 are analyzed as previously discussed with respect to claims 1-30 above.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to NANCY BITAR whose telephone number is (571)270-1041. The examiner can normally be reached on Mon-Fri (7:30a.m. to 5:00pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta can be reached on 571-272-7453. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Andrew W. Johns/
Primary Examiner, Art Unit 2624

Nancy Bitar

3/28/2008